



PART IV.—EDUCATION, SCIENCE, AND ART (C).

Administration Report of the
Director of Medical and Sanitary
Services for 1944.

(Dr. S. F. CHELLAPPAH.)



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DEPARTMENT OF MEDICAL AND SANITARY SERVICES.

ADMINISTRATION REPORT OF THE DIRECTOR OF MEDICAL AND SANITARY SERVICES FOR 1944.

SECTION I.—VITAL STATISTICS.

The Registrar-General has furnished the following figures :—

Estimated population	..	..	6,276,000
Total number of births registered	..	..	232,827
Birth rate per 1,000 of the population	..	..	37.1
Total deaths registered	..	..	133,985
Death rate per 1,000 of the population	..	..	21.3
Infant deaths	..	..	31,457
Infant death rate per 1,000 live births	..	..	135
Maternal deaths	..	..	3,179
Maternal death rate per 1,000 live births	..	..	13.7

Table of the Main Causes of Deaths registered in Ceylon for 1944.

<i>All Causes</i>	..	..	..	133,985
I. <i>Infectious and Parasitic Diseases</i>	..	..	..	23,672
Typhoid fever and paratyphoid fever	..	..	..	1,573
Diphtheria	..	..	..	87
Influenza	..	..	..	2,228
Dysentery	..	..	..	1,925
Tuberculosis of the Respiratory system	..	..	..	3,141
Tuberculosis of other organs	..	..	..	568
Disseminated Tuberculosis	{	Acute	..	9
		Unspecified	..	1
Malarial Fever and Malarial Cachexia	..	..	..	5,601
Black Water Fever	..	..	..	3
Ankylostomiasis	..	..	..	1,568
II. <i>Cancer and other Tumours</i>	..	..	..	834
Cancer and other malignant tumours	..	..	..	797
III. <i>Rheumatic Diseases, Nutritional Diseases, Diseases of the Endocrine Glands, and other General Diseases</i>	..	..	..	12,329
Acute rheumatic fever	..	..	..	1,943
Rickets	..	..	..	603
Mandama	..	..	..	8,379
IV. <i>Diseases of the Blood and Blood-making Organs</i>	..	..	..	2,948
V. <i>Chronic Poisonings and Intoxications</i>	..	..	..	11
VI. <i>Diseases of the Nervous System and of Organs of Special Sense</i>	..	..	..	15,416
Infantile convulsions (age under 5 years)	..	..	..	11,800
VII. <i>Diseases of the Circulatory System</i>	..	..	..	3,505
VIII. <i>Diseases of the Respiratory System</i>	..	..	..	13,559
Bronchitis	..	..	..	1,685
Broncho-pneumonia (including Capillary Bronchitis)	..	..	..	2,583
Lobar Pneumonia	..	..	..	1,902
Pneumonia, unspecified	..	..	..	4,103
IX. <i>Diseases of the Digestive System</i>	..	..	..	9,328
Diarrhoea and Enteritis (under 2 years of age)	..	..	..	1,660
Do. (2 years and over)	..	..	..	5,729
X. <i>Non-Venereal Diseases of the Genito-Urinary System and Annexa</i>	..	..	..	2,139
XI. <i>Diseases of Pregnancy, Child-Birth and the Puerperal State</i>	..	..	..	3,179
Puerperal Haemorrhage	..	..	..	295
Puerperal Sepsis, not returned as post-abortive	..	..	..	763
Puerperal Albuminuria and Convulsions	..	..	..	1,482
XII. <i>Diseases of the Skin and Cellular Tissue (Excludes Rata of infants)</i>	..	..	..	1,334
XIII. <i>Diseases of the Bones and Organs of Locomotion</i>	..	..	..	44
XIV. <i>Congenital Malformations</i>	..	..	..	112
XV. <i>Diseases of Early Infancy (Includes Rata)</i>	..	..	..	16,417
Congenital Debility	..	..	..	5,104
Premature birth	..	..	..	3,863
Rata	..	..	..	7,153
XVI. <i>Old Age</i>	..	..	..	8,306
XVII. <i>Violent and Accidental Deaths</i>	..	..	..	3,589
XVIII. <i>Ill-defined Causes of Death</i>	..	..	..	17,263
Cause of death unstated or ill-defined—				
(a) Dropsy	..	..	..	2,326
(b) Pyrexia	..	..	..	13,783

SECTION 2.—GENERAL DISEASES.

As in previous years malaria continued to be the most prevalent disease. 51,873 cases were treated in hospitals and 1,538,194 at out-door dispensaries.

A summary of the most prevalent diseases is shown in the following table :—

TABLE OF MORBIDITY IN RESPECT OF IN-PATIENTS AND OF OUT-PATIENTS.

(a) Table of Morbidity in respect of In-patients, 1944.

Diseases.	No. of Cases.
Enteric	6,090
Malaria	51,873
Malarial Cachexia	3,724
Influenza	15,795
Dysentery	7,713
Tuberculosis	5,555
Syphilis	2,189
Gonorrhoea	2,453
Cancer	1,122
Chronic Rheumatism	3,741
Affections of the Eye	8,101
Bronchitis	8,916
Broncho-pneumonia and Pneumonia	7,845
Asthma	3,066
Diarrhoea	10,323
Ankylostomiasis	9,344
Ascariasis	2,636
Abscess	8,535
Diseases of Joints	1,723

(b) Table of Morbidity in respect of Out-patients, 1944.

Diseases.	No. of Cases.
Malaria	1,538,194
Malarial Cachexia	78,687
Influenza	525,652
Dysentery	30,071
Syphilis	1,756
Gonorrhoea	7,252
Chronic Rheumatism	339,254
Ear Diseases	59,628
Diseases of the Lungs and Pleura	430,378
Gastric Diseases	788,722
Skin Diseases	280,021
Ulcers	452,362
Eye Diseases	88,804
Ankylostomiasis	224,349
Intestinal troubles	440,716

SECTION 3.—COMMUNICABLE DISEASES.

The following table gives the notified cases of communicable diseases with deaths resulting therefrom :—

Diseases.	Cases.	Deaths.
Chickenpox	4,964	28*
Cholera	14	12
Diphtheria	156	32
Dysentery	5,049	558
Typhoid Fever	3,807	672
Measles	7,699	9
Mumps	1,056	1
Pulmonary Tuberculosis	2,339	720
Plague	—	—
Smallpox	124	21
Whooping Cough	1,099	31
Acute Anterior Poliomyelitis	6	—

* In this connection please see remarks re outbreak of Smallpox.

Plague.—There were no cases of Plague during the year.

Cholera.—There were altogether 14 cases of cholera for the year, all of which were in the Trincomalee District. Infection was probably introduced from India.

Smallpox.—The first case of smallpox was an imported one which occurred in Colombo on January 11. From the latter part of January to the middle of July, there were 21 imported cases (among Military personnel) with 2 deaths. In February, there was an outbreak of smallpox at Laxapana estate, Maskeliya, in which there were 3 cases.

A case occurred on February 15, at Negombo, in a recent arrival from India. An outbreak occurred at Uda Pussellawa on October 23. The total of number of cases in this outbreak was 11 with 2 deaths. The source of infection has not been traced.

An outbreak started in Colombo towards the end of October. The total number of cases was 28 with 7 deaths. The source of infection has not been traced although, it is suspected that the infection has been introduced from India.

The last outbreak of smallpox for the year occurred in Jaffna Peninsula. During October and November, a number of cases which were diagnosed as virulent Chickenpox was reported. On investigation it was found that cases that had been so diagnosed had started about April and similar cases had occurred in different parts of the peninsula. In December, these cases appeared within the Urban Council area of Jaffna, and on December 17, they were diagnosed as Smallpox. The areas affected were the Urban Council area of Jaffna and in and around Chavakachcheri. Up to the end of December, there were 62 cases reported with 10 deaths.

Immunisation.		Anti-Typhoid.	Anti-Smallpox.
1st dose	..	127,722 Primary	.. 167,997
2nd dose	..	95,946 Secondary	.. 26,277

The number of primary vaccinations represent 68 per cent. of the previous year's births.

Twenty-two Sanitary Assistants obtained their certificates of competency in vaccination, making a total of 456 Sanitary Assistants who have qualified themselves in vaccination.

HOOKWORM.—Mass treatment for Ankylostomiasis has been administered to 1,419,971 persons in estates, schools, villages, hospitals and dispensaries by the officers of the Department.

Thirty-six Sanitary Assistants and 9 estate dispensers have been given certificates of competency in Hookworm treatment.

YAWS.—There were 877 known infectious and 4,174 non-infectious cases of Parangi. The number of injections given were 1,967. At the end of the year there were 557 known infectious and 4,270 non-infectious cases. 224 cases were not traceable.

FILARIASIS.—There were 1,074 known cases of Filariasis in 224 villages. Pistia plants were removed from 78 villages out of the 194 localities in which this plant was breeding.

TUBERCULOSIS.—A Committee under the Chairmanship of the D. M. & S. S. was appointed by the Minister for Health to report on the measures that should be adopted for the control of Tuberculosis in Ceylon. This Committee, included representatives of the private Medical practitioners and of the Colombo Municipality. In all five meetings were held and a very comprehensive report has been submitted. This report draws attention to—

- (a) the insufficiency of accommodation for patients,
- (b) the lack of trained personnel for the work, and
- (c) the meagreness of technical resources.

Based on the recommendations of the report a short-term and a long-term policy have been drawn up so that action may be taken in due course of time.

The total number of beds at the Sanatoria at Kankesanturai, Kandana, Ragama and the T. B. Hospital at Talagolla is 609 and more beds are being provided in the general hospitals.

Number of Patients treated—

	1943.			1944.		
	Males.	Females.	Total.	Males.	Females.	Total.
Chest Hospital, Ragama	.. 1,049	.. 354	.. 1,403	.. 1,234	.. 469	.. 1,703
Sanatorium, Kandana	.. 127	.. 78	.. 205	.. 150	.. 73	.. 223
Sanatorium, Kankesanturai	.. 169	.. 80	.. 249	.. 242	.. 156	.. 398
Total	..		1,857			2,324

At the Anti-Tuberculosis Institute, Colombo, 5,036 patients were treated as out-patients. This Institution serves as a Tuberculosis Dispensary in the Tuberculosis Scheme. It is provided with X'rays and it is a centre for the induction of artificial pneumothorax and for giving refills. Six beds are provided upstairs for the observation of cases and for those that need the induction of artificial pneumothorax. This institution is also the Head Quarters of the Medical Officer. Tuberculosis Survey, who is carrying out a survey in the Kotte area.

Of the two Medical Officers trained in T. B. in 1944, one was appointed to Galle, to organize the chest clinic there and the other as Assistant Medical Officer, Chest Hospital, Ragama. A chest clinic was also opened in Kandy during the period under review.

Twenty-nine T. B. Booths were constructed during the year bringing up the total to 51. 2,096 patients were under care in their homes ; of these 539 were isolated satisfactorily.

VENEREAL DISEASES.—Satisfactory progress has been recorded during the year under review. A new clinic in the Coal grounds, harbour area, was opened. There are at present in the Island 23 clinics of which 14 are under specially trained Medical Officers. Besides, Venereal diseases work is being done by the Medical Officers in charge of hospitals and dispensaries. The work in the clinics has been carried on systematically and the clinics are becoming more popular and the response to the work is very encouraging. Follow-up-work too has been satisfactory. The new Defence Venereal Diseases regulations are now being put into effect and a number of cases particularly females is being sent to the Clinics for compulsory treatment.

The proposed buildings to serve as V. D. annexes to existing hospitals and dispensaries could not come up for want of materials and labour. Medical Officers are being trained at the Clinic at the General Hospital, Colombo. During 1944, four Medical Officers received their training.

More propaganda work, in addition to the distribution of pamphlets, talks and cinema demonstrations, was done during the year, by way of advertisement in the Vernacular and English Papers.

The work in the Island is steadily increasing in volume. This is partly due to the Propaganda work undertaken by the Department and also due to an actual increase in the incidence of these diseases.

The following is a statement of the V. D. cases treated :—

		1942.	1943.	1944.
First Visits	..	7,939	10,440	15,392
Subsequent Visits	..	41,647	76,993	77,150
Total	..	49,586	87,433	92,542

There has also been formed a Ceylon Society for Moral and Social Hygiene to assist in the after care and rehabilitation of Venereal Diseases patients. This Society, started by a private enterprise, is anxious to establish friendly contact with the men and women attending the treatment centres and see what assistance could be given to them by way of encouraging them to continue treatment until cured and also by helping the women especially to find employments and new ways of life.

LEPROSY.—Anti-leprosy work during the year was done—

- in the two Leprosy Hospitals at Hendala and Mantivu,
- in the 24 Out-door Clinics attached to the civil hospitals and dispensaries, and
- by the field organization controlling and observing the non-infective cases and contacts.

The two hospitals are mainly for the segregation, treatment and nursing of infective cases, which form one of the chief methods of controlling leprosy in the Island. The hospital at Hendala gives accommodation for about 750 patients. The one at Mantivu accommodates about 300.

		Hendala.	Mantivu.	Total.
Cases at the end of 1943	..	762	328	1,090
Do. 1944	..	776	301	1,077
Neural	..	322	Lepromatous	755
Under 14 years	..	12	Over 14 years	1,065

The field work of the leprosy campaign continued satisfactorily in spite of War conditions and it had been possible for the officers of the campaign to visit all the cases outside on parole and note their progress. 226 new cases were detected during the year as compared with 195 in 1943 and 118 in 1942. During 1944, there were 117 admissions and 13 re-admissions. 106 deaths occurred in the two hospitals and 14 deaths amongst the paroled cases, making a total of 120 deaths. At the end of 1944 there were 1,077 scheduled to both the hospitals and 1,607 on parole making a total of 2,884 cases living in the Island.

During the year, of the 24 clinics only 21 have been functioning. The clinics at Olaboduwa, Horana and Pimbura have not been working owing to there being no cases for treatment. The central office for the control of the field organization is at Maradana to which is attached the Central Leprosy Clinic, which is the chief out-door Leprosy Clinic.

As a part of occupational Therapy great activity in vegetable gardening continued during the year. The other activities have been carpentry, rattanning, tinkering, animal husbandry and weaving. Employment is also given to patients in laundry work, white-washing, masonry, barbers' work and as ward and garden labourers.

Finally, it may be mentioned more cases were detected as compared with the last year and although the total number of cases scheduled to the institutions shows a decrease, the total cases for the Island show an increase by 61.

SECTION 4.—HYGIENE AND SANITATION.

Water Supply.—114 private and 41 public wells were constructed. Apart from the 3 Municipal towns 25 Sanitary Board towns, 13 Urban Councils and 25 Village Committees have pipe-borne water supplies. 5 towns augmented their supplies and 11 towns have worked out new schemes to provide pipe-borne water supplies. 420 samples were examined bacteriologically and 57 showed evidence of pollution, 38 samples were examined chemically of which 20 showed evidence of pollution.

Disposal of Excreta.—The total number of new latrines constructed was 3,564 including 959 temporary latrines. The latrines constructed were made up as follows :—

Deep pit ..	..	..	2,850
With outside pit ..	..	..	58
Bucket latrines ..	..	..	648
Water carriage ..	..	..	8

433 old pit latrines were converted to sanitary type ; 92 old pit latrines were converted Bucket type ; 78 old bucket latrines were converted to sanitary type.

Drainage.—40,736 feet of cement drains were constructed.

Licensed and Offensive Trades.—There were 15,245 licensed trades of which 15,087 were inspected. Of these 4,243 were radically improved. Of the 192,549 defects found 106,340 were corrected. Of the 3,391 offensive trades existing 3,302 were inspected. Out of the 1,924 nuisances created 594 were abated.

Anti-fly Measures.—101,450 breeding places were found of which 82,529 were dealt with.

Food Sanitation.—52,659 head of cattle were inspected and 50,778 were passed as fit for slaughter. Of the 12,977 goats inspected 12,818 were passed as fit for slaughter.

Milk Supply.—765 milk samples were analysed, out of which 470 were found adulterated.

Rural Sanitation Scheme.—Of the 600,248 houses in 9,277 villages, 194,269 houses were worked and 24,195 completed during the year.

Housing.—Of the 846,867 private premises, 702,809 were inspected and of the 829,244 defects noticed, 648,175 were rectified.

Of the 6,282 public premises, 5,881 were inspected. The number of inspections was 99,444. Of the 42,249 defects pointed out 34,552 were rectified.

Out of the 2,477 building applications received, 1,801 were recommended and 643 were not recommended.

Estate Health Work.—There are approximately 2,300 estates scheduled under the Medical Wants Ordinance (Cap. 176). The staff for health work consists of the same officers as mentioned in my report for 1942.

There are 66 hospitals and 116 dispensaries maintained by Government in Estate Medical Districts. In addition, there are 98 estate hospitals and 724 estate dispensaries. All estate hospitals were inspected during the year for rebate purposes. The 724 estate dispensaries serve 1,442 estates. 181 estate dispensaries were inspected during the year. The estate medical attendants consist of 5 qualified medical officers, 3 Indian qualified medical officers not registrable in Ceylon, 1 qualified apothecary and 715 approved dispensers. 516 estates were inspected. Sanitary conditions of 5 per cent. of these estates were very good, 45 per cent. good, 38 per cent. fair, 8 per cent. poor and 2 per cent. bad. 71 of these estates were fully provided with sanitary dust bins and 130 partly. 425 of these estates had non-overcrowded lines, 42 slightly overcrowded and the balance 49 had overcrowded lines. Of the 79,598 line rooms inspected 68,447 were up to Government standard. In the estates inspected there were 13,311 pits, 1,458 water-borne and 10,527 bucket latrine compartments. 814 latrine compartments are further required. 333 of the estates inspected had sufficient number of latrines, 163 insufficient and 20 had no latrines, 41 estates had sanitary conveniences for children provided fully and 147 partly, 347 estates had entirely protected supplies of water, 102 partly protected and 67 unprotected supplies. 182,124 persons were treated for Ankylostomiasis on 380 estates.

On all estates there were 239 qualified midwives serving 411 estates and 33 unqualified midwives serving 45 estates. In addition, 121 estates were served by other qualified midwives not employed on estates. 650 estates had creches and 329 estates were supplying cooked meals to children. 154 estates had maternity wards and 22 estates had lying-in-rooms attached to estate lines. 14 estates had clinics held on the estates and 1 at the hospital and 45 other estates were served by outside clinics. 26,867 persons in 1,068 estates were vaccinated against smallpox ; 23,485 of them were successful, 1,147 unsuccessful, and 2,235 cases were unknown. 79 estates were visited for anti-typhoid inoculation ; 12,858 first doses and 9,468 second doses were given. 307 visits by Inspecting Officers and 1,937 visits by Sanitary Assistants were paid to estates in connection with Communicable Diseases.

Eight schools were medically examined. Of the 306 children examined, 77 were defective. Of the 59 defects found, 40 were corrected.

SECTION 5.—MATERNITY AND CHILD WELFARE.

These services were extended by the appointment of 50 midwives and by the establishment of 4 new Maternity Homes and 17 Health Centres in rural areas.

The following is a statement in regard to work done :—

No. of Health Centres ..	..	..	461
No. of Clinics held ..	..	..	18,122
Expectant mothers under care ..	..	..	100,836
Infants under care ..	..	..	100,895
Pre-school children under care ..	..	..	109,519
Deliveries by Departmental Midwives ..	..	..	60,077
Deliveries in Hospitals and Maternity Homes ..	..	..	22,347
Home visits by Public Health Nurses ..	..	..	80,110
Home visits by Public Health Midwives ..	..	..	913,743

SECTION 6.—SCHOOL HEALTH WORK.

The following figures show the work done :—

No. of schools in the Island ..	..	5,686
No. of schools taken for medical inspections ..	..	1,713
No. of students medically examined ..	..	61,342
No. of scholars defective ..	..	46,644
No. of defects found ..	..	94,399
No. of defects corrected ..	..	40,276

In 3,605 schools the special scheme of Health Education was in operation as against 3,010 in the preceding year. 4,355 schools were provided with midday meals. Amount spent for the purpose was Rs. 3,763,589.

SECTION 7.—HEALTH EDUCATION.

Health Education and Propaganda were carried out on the same lines as in previous years. A special feature of the activities of the year was the intensive propaganda campaign against Venereal Diseases, which included the publication of a series of advertisements in the weekly Press and in monthly periodicals. The All-Ceylon Health Week was held in July, the celebrations being restricted to three days only owing to the present emergency.

Lectures illustrated with lantern slides ..	..	231
Lectures without lantern slides ..	..	2,507
Cinema Shows ..	..	98
No. of Health Exhibitions held ..	..	244
No. of Talks given in Schools, Villages and Clinics by Field Officers ..	..	87,673
Conferences with staff ..	..	1,913
Conference with others ..	..	426
No. of Health Leagues functioning ..	..	115
Expenditure by Health Leagues on Health Work ..	..	Rs. 5,724.36.

A new departure in the arrangement of the radio talks on Health was the having of a series of three talks for a term on one particular subject. The English talks were given during the first month and the Sinhalese and Tamil talks during the second and third months respectively. This has been very popular. 36 talks were delivered in all, the four special subjects chosen being Public Health, Venereal Diseases, Tuberculosis and Cancer. The four issues of the Health News for the year were devoted to these four subjects. All the leaflets on Venereal Diseases were reprinted and the pamphlets entitled "Elementary Dietetics" has been revised and the second edition is in the Press.

All officers of the Department were circularised to give their full co-operation to the National Food Campaign organized by the Civil Defence Commissioner, the special activity of the Departmental officers being the encouragement of compost-making and Home-Gardens. The new Health Van and the Health Cart are touring the villages doing special Health Education work among the school population in particular. This is a very popular activity and arrangements are being made to have another Health Van to replace the Cart and also to provide a separate Cinema Van with talkie equipment.

SECTION 8.—NUTRITION.

Nutritional surveys were carried out in different parts of Ceylon throughout the years. Mothers and infants were examined by Health Officers and school children by Sanitary Assistant in their areas. Reports were submitted monthly and the results analysed. These reports were of value in assessing the nutritional state of the population under war conditions.

To make the study of the effects of wartime diets complete, dietary surveys were organized in the rural areas of Ceylon. Surveys were carried out in Kalutara, Matara, Rakwana, Godakawela and Anuradhapura.

Much assistance was given to the Department of Civil Defence. Samples of wheat, flour and rice were examined and reported on with a view to assisting the Food Controller in the distribution of these foodstuffs. Samples of millets, potatoes and pulses were also examined.

A booklet "Food in Wartime—What to Eat and Why" was published and distributed in English, Sinhalese and Tamil through the Department of Civil Defence. Many coloured posters on nutrition were also prepared. The pamphlet "Elementary Dietetics" was revised.

Investigations in the cyanide content of manioc were continued; cases of manioc poisoning were studied and stomach contents analysed for hydrocyanic acid. Estimates were carried out on the vitamin C content of certain vegetables and fruits.

Courses of instruction were given to sanitary assistants and learners, medical students, health officers and post-graduates.

SECTION 9.—MALARIA.

At the beginning of the year 1944, conditions favourable to the outbreak of an epidemic of malaria manifested themselves in certain parts of the Wet and Intermediate Rainfall Zones.

Immediate action was taken to prevent the epidemic by generalized oiling of all rivers and streams where *A. Culicifacies* was breeding extensively.

Steps were also taken to establish adult control measures and treatment centres in all areas likely to be affected, if and when necessary.

The organization required for the work in regard to increased health staff, material, transport and medical comforts were arranged for, but except for the generalized oiling that was in operation no other control or preventive measure became necessary.

For further reference to Anti-Malaria work please see sections under Medical Entomology, Sanitary Engineering and Anti-Malaria Campaigns.

SECTION 10.—MEDICAL ENTOMOLOGY.

Teaching.—About 30 lectures and demonstrations on Medical Entomology with special reference to malaria and the indigenous Anopheline mosquitoes were given to sanitary learners, medical students, and teachers at the Colombo laboratory; and five groups of Laboratory Assistants serving in the Department of Medical and Sanitary Services were each given one month's training in entomological work. In all 137 persons received instruction. At the Kurunegala Field Training Centre, eight courses in Entomology from one to six weeks' duration were given by the Medical Assistant in Entomology. The persons attending these classes numbered 153 and included members of the fighting services, medical officers of health, post graduates (Medical), sanitary assistants, divisional revenue officers and agricultural Corps Officers. In addition to the above many demonstrations in entomological field methods were given by the staff of the Division to Sanitary Assistants in different health areas.

Laboratory and Field Work.—Prevention of malaria epidemics in South-west and Central Ceylon. The entomological investigation work forms the basis of the malaria control activities throughout the south-west lowlands and the Northern and Eastern hill country. The material forwarded from the observation stations and sites for examination forms a large proportion of the routine work of the Division.

No important changes in regard to the position or number of the observation stations (46) were made during the year, but the location of several of the subsidiary observation sites was altered and seven additional ones were established. The total number of observation stations and subsidiary sites in existence at the close of the year was 339.

A. Culicifacies was prevalent only at the low-country Dry Zone stations, particularly Chilaw and Hiripitiya. Of a total catch of 1,088 adults and 2,018 larvae of this mosquito, 1,003 adults and 1,677 larvae were obtained from the four Dry Zone stations. From the 17 intermediate zone stations only 74 adults and 206 larvae were collected during the year, while from the 17 wet zone stations no adults and 7 larvae only were obtained. Of the total larvae collected 1,571 or 77·7 per cent. were found in river and stream beds. The three infections with malaria parasites all occurred in *A. Culicifacies* (infections rate in this species for the year being 0·42) two infected females being found at Chilaw in August and one at Ridigama in October.

At the subsidiary observation sites, where larval dipping only was done, 6,740 examinations were made and 40,480 Anopheline larvae collected and forwarded for identification. *A. Culicifacies* larvae were found at 91 examinations—chiefly in January, July, August and December in the Intermediate Zone; a total of 614 (1·5 per cent. of the entire larval catch) larvae of this species were collected.

In the report for the year 1943, it was pointed out that the data provided by the work at the Malaria Observation Station showed a progressive decrease in the prevalence of *A. Culicifacies* in the Intermediate and Wet Zones from 1939 (an epidemic year) to 1942 when very low findings were obtained. In 1943 a definite, but by no means severe, rise occurred and was accompanied by a minor epidemic and it was thought probable that this upward trend of prevalence might be continued during 1944, particularly during the dry period (January to March) intervening between the north-east and south-west monsoons. Accordingly when early in January the field work showed an extension of breeding *A. Culicifacies* in the Intermediate Zone and northern part of the Wet Zone preventive action was promptly taken by the Department; but unusual and relatively heavy rains occurred in February flushing the rivers and streams and rendering many of them unsuitable for breeding purposes. The anticipated rise in the prevalence of this mosquito in the early months of the year, therefore, did not eventuate, and the dry period following the south-west rains (August to early October) was in no way abnormal either in respect of climatic conditions or of *A. Culicifacies* prevalence. Thus the findings in respect of *A. Culicifacies* during 1944, although greater than in 1942, were less than in 1943.

(b) *Investigations at Malaria Campaign Centres.*—Field Assistants of the Division were attached to the staff of the Medical Officers of Health in charge of the Malaria Campaigns at Anuradhapura, Chilaw, Puttalam and Kurunegala. Their work was closely associated with the malaria control activities and comprised two main series of investigations:

- (a) Comparative investigations into Anopheline prevalence in the protected and Control Zones, and outside these zones; and
- (b) Routine checking of the work of the oiling gangs in order to estimate the effects of this measure and to assist in maintaining a high standard of efficiency.

(c) *Mosquito Surveys.*—Mosquito surveys and similar investigations were carried out during the year at Diyatalawa, and in the Intermediate and Northern Wet Zones. The latter were undertaken in association with the control work (mainly the oiling of rivers and streams) introduced into the Intermediate and Northern Wet Zones during the early months of the year. Four Field Assistants were employed on this work from mid January until March and the material collected was sent to the laboratories at Colombo and Kurunegala for examination. In addition to the information obtained, these investigations also served as a valuable check upon the activities and work of the oiling gangs.

(d) *Rat Flea Surveys*.—Surveys were carried out in collaboration with Medical Officers of Health at Galle and Kurunegala. In all, 134 premises were examined and 299 rats were trapped; from these 829 fleas were collected and examined. Two species of fleas only were found, *Xenopsylla cheopis* forming 53·3 per cent. of the catch and *X. astia* 46·7 per cent. The *X. cheopis* index at Galle was 0·8, and at Kurunegala 1·6.

(e) *Research*.—Research work, other than that indicated above in relation to malaria, included studies on the indigenous Culicine mosquitoes, investigations on the presence of mites in human sputum and their role in the causation of spasmodic bronchitis and asthma associated with high eosinophilia, and investigations on the Trombiculid mites with special reference to scrub typhus.

The work on mites and their possible relation to certain respiratory disorders was a continuation of that outlined in last year's report. During the present year, however, it was confined largely to the study of cases of bronchial asthma associated with high eosinophilia. Twenty-five Ceylonese patients in whom the duration of the clinical symptoms varied from 3 weeks to 17 years and the eosinophilia at the commencement of investigations ranged from 3,000 to 42,550 per cmm., were studied. Over 200 samples of sputum were examined and mites of various species (particularly Tarsonemids and Tyroglyphids) were found at one time or other in every patient from whom samples were obtained. All cases were treated with organic arsenicals and, with one exception, responded satisfactorily; the response was rapid and involved a great reduction in the eosinophilia and cessation of the clinical symptoms. The effects of the treatment were maintained throughout observation periods from 4 to 11 months.

Work in relation to scrub typhus was commenced early in the year. The field work was carried out in the vicinity of the villages of Embilipitiya (Province of Sabaragamuwa) and Nalanda (Central Province). Both villages are situated in the dry zone of Ceylon, and at both forested lands were being opened up for food production purposes. The field work involved the trapping of various types of rodents and the collecting of samples of soil, scrapings from burrows, beating of undergrowth, &c., and their subsequent examination for Trombiculid and other mites in the laboratory. Living rodents, and, whenever possible, emulsions of mites were sent to the Director of the Bacteriological Institute for serological work. Comparatively little data on the disease, and no information on the Trombiculid mites—the probable vectors—were previously available in Ceylon. The study of the Trombiculid fauna was, therefore, essential and much time has been devoted to this work by the Research Assistant in Entomology. Several species of *Trombicula* and allied genera have now been identified, and a number of hitherto undescribed species have also been found. Numerous experiments on the rearing of the parasitic larval forms to the free living nymphal and adult stages have also been carried out in the laboratory, and a new technique for rearing to the nymphal stage has been evolved. The work is still in progress.

SECTION 11.—SANITARY ENGINEERING.

Water Supplies.—Eight existing supplies were inspected and reports on 3 made. Preliminary investigations were made regarding 3 proposed supplies. A preliminary report on the Augmentation Scheme for Kandy was made. Investigations and reports were also made regarding the water supplies at 3 outstation hospitals.

Drainage Schemes of five towns received attention and also of a number of hospitals.

Lectures.—Lectures and Demonstrations in field practice and sketching were given as usual by the Assistant Sanitary Engineer at the Malaria Field Training Centre at Kurunegala to the Medical Officers and Sanitary Assistants in training. Lectures were also delivered on Building Construction to two classes of Sanitary Learners.

Rural Hospital Scheme.—Work on the 38 Rural Hospitals at various centres in the Island for which contracts were signed in 1943 was taken in hand and is in progress.

During the year agreements were signed for the construction of 41 Rural Hospitals. So far, five hospitals have been completed.

Maternity Homes.—The construction of the Maternity Homes for Ayagama and Akuressa is nearing completion.

Anti-Malaria Works.—Work on the barrier dam at Giriulla was continued. Rock Pool Sealing was undertaken on the Badulla-oya and Welimada and were completed during the year.

Water Analysis.—Comments were made as usual on Bacteriological and Chemical Analysis reports received from the Director, Bacteriological Institute, and the Government Analyst respectively.

Emergency River Oiling.—Orders for Malariol from various Field Medical Officers were received as usual throughout the year and executed. Sprayers and other oiling equipment were received, repaired and despatched as usual. A total of 149,507 gallons of Malariol were indented for during the year. The number of miles oiled approximately amounted to 8,400 miles.

SECTION 12.—ANTI-MALARIA CAMPAIGNS.

The anti-malaria work of the division can be classified under the following headings:—

(a) *Anti-Malaria Campaigns in the towns of Anuradhapura, Chilaw, Kurunegala, Puttalam and Badulla*. In Trincomalee and China Bay this work is in charge of the Army Authorities.

(b) *Agricultural, Colonization and Irrigation Constructional Schemes*.—Anti-malaria measures consisting chiefly of disinsectization were undertaken in the following places:—Minneriya Development Scheme, Minipe Scheme, Elahera Scheme, Parakrama Samudra Scheme, Kagama Colony, Paranthan-Kilinochchi-Iranamadu Scheme, Kottukachchiya State Farm, Tabbowa Colony, Polonnaruwa Livestock Farm, Pelwehera and Nalanda Farms, Beragama Colony, Wariyapola Agricultural Station and in some State chenas.

Although disinsectization was the main anti-mosquito measure adopted in all these places, oiling was also done in places (e.g., Elahera, Nalanda). In addition to these measures filling of borrow pits, pollution of breeding places, and fish introduction into wells, cleaning of drains and minor drainage were also adopted in most of the places.

(c) *Malaria Control Work in Rural Areas.*—Rural Malaria Control work was organized on a very much larger scale than in previous years and the following places were taken up for such work late in the year 1944 :—Wellawa, Mallawapitiya, Mahiella, Alawwa, Galgamuwa, Ehetuwewa, Munneswaram, Dunakadeniya, Udabaddawa, Ganewatta, Madurugoda, Wariyapola, Hettipola, Bingiriya, Bowatta, Kalpitiya, Vavuniya, Madawachchiya, Chavakachcheri, Pallai, Kodikamam, Eravur, Valachenai, Polonnaruwa, Murunkan, Pooneryn, Tangalla, Tissamaharama, Walasmulla, Weeraketiya, Hakmana, Godakawela, Opanayake, Moneragala, Medagama, Teldeniya, Koslanda and Makandura.

Malaria control measures consisted of seasonal disinsectization at the majority of the above places. In some places (e.g., Kalpitiya, Walasmulla, Eravur, Valachenai, Tangalla, &c.) anti-larval measures—oiling and paris greening—were carried out. Filling too was undertaken at most places.

(d) *Railway Stations.*—Seasonal disinsectization work with a view to protecting the railway staff employed at the stations given below was undertaken as in previous years. The cost of the work was borne entirely by the Railway Department, but the organization and execution of the work was carried out by the officers of the Medical Department. The stations where this work was done were :—Alawwa, Polgahawela, Rambukkana, Maho, Galgamuwa, Mankulam, Pallai, Vavuniya, Mannar, Talaimannar, Galoya, Polonnaruwa and Batticaloa.

(e) *Anti-Malaria Work for Imperial Authorities.*—Malaria Control work on behalf of the Imperial authorities was carried out at Polgahawela, Anuradhapura and Kekirawa, but the first two places were taken over by them during the course of the year leaving only Kekirawa to be worked by this Department. The rest of the work was done by the Imperial authorities.

(f) *Malaria Training.*—The training of Medical Officers and Sanitary Assistants in Malariology was continued in 1944 at the Field Training Centre at Kurunegala. Medical personnel of the Services were also given short courses of training at Kurunegala. In the Colombo Laboratory, four of the eleven Laboratory Assistants recruited to the Department were given a training in malaria laboratory work. Lectures and demonstrations were also given to Sanitary Learners, Pupil Nurses, Irrigation Learners and the Services.

(g) *Special Work.*—(a) Examination of Blood Films.

	1942.	1943.	1944.
Total number of specimens examined	9,580	18,218	16,642
Number positive	1,526	4,655	2,109
Parasite Rate	12.7%	25.5%	15.9%
Percentage of Prevalence of Species :—			
Benign Tertian	43.2%	37.42%	45.1%
Malignant Tertian	29.1%	44.42%	39.6%
Quartan	26.8%	18.16%	16.6%
Unclassified	Nil	Nil	Nil

(b) (i.) *Paper on “ Observations upon the Epedemiology of Malaria in Ceylon.”*—Dr. K. J. Rustomjee’s paper on the “ Observations upon the Epidemiology of Malaria on Ceylon ” was published as Ceylon Sessional Paper No. XXIV. of 1944.

(ii.) A note on “ P. tenue Forms and Band Forms of P. Vivax seen in Ceylon during the Epidemic, 1943 ” by Messrs. D. S. Samarasinghe and A. K. Piyasena (Laboratory Assistants) and Dr. K. J. Rustomjee appeared as an abstract in the June, 1944, issue of the “ Journal of the Malaria Institute of India.”

SECTION 13.—A. R. P. WORK.

Out of the two Medical Officers of Health and one Medical Officer who had been seconded for service in the Civil Defence Scheme of the Island, one Medical Officer of Health and the Medical Officer reverted to this Department towards the ends of the year. The Medical Officer of Health who continues to be in the Civil Defence Scheme has been officiating as A. R. P. Controller for the City of Colombo and suburban areas. The Medical Officers of Health were in charge of the casualty services established in their areas under the Civil Defence Scheme and have been doing this work in addition to their normal duties.

SECTION 14.—MOBILIZATION AND SECONDMENTS FOR MILITARY SERVICE.

At the end of the year there was a total of 23 Medical Officers of the Department who had been mobilized.

SECTION 15.—WORK DONE IN HOSPITALS, DISPENSARIES, &c.

Hospitals.—Six new hospitals were completed bringing the total number of hospitals to 140. A scheme for the construction of Rural Hospitals has been introduced under which it is proposed to provide such hospitals in as many as possible of the areas in which Central Dispensaries are now functioning. 50 Rural Hospitals are under construction but difficulty is being experienced in obtaining building materials and labour. Five Rural Hospitals were completed and opened during the year.

Dispensaries.—One new Central dispensary, two branch dispensaries and nine visiting stations were opened during the year. At the end of the year there was a total of 271 Central dispensaries, 181 branch dispensaries and 406 visiting stations.

Mental Hospital.—The accommodation provided was 2,500 beds. The number of certified patients admitted during the year was 522 and the number admitted to the House of Observation was 1,733. The number of certified patients discharged was 237 and uncertified 567. Of the 536 deaths, 222 died of dysentery, 65 of general debility and 43 of phthisis. The daily average number of patients for the year was 2,275.

Pasteur Institute.—1,550 patients were treated. Anti-rabic vaccine was supplied to the outstation centres where 1,289 patients were treated in all. 519 brains were examined for rabies of which 238 were positive, 158 microscopically negative and 123 were received unfit for examination. Two failures (Hydrophobia developed after treatment) were recorded for the year.

Dental Institute.—29,466 patients, including children, were treated. The total number of visits paid by patients was 47,213.

The number of patients were made up as follows :—

Out-door patients—adults	..	..	26,747
Children attending the school Clinic	..	..	1,206
In-door patients attending for dental treatment from hospitals	..	..	1,513
Total			29,466

Rs. 2,475 was collected as out-door charges and from dentures supplied to patients. 946 dental operations were carried out under Nitrous Oxide Gas and Oxygen and Chloroform Anaesthesia.

De Soysa Maternity Hospital.—The number of admissions was 11,613 to the non-paying section and 758 to the paying section. The accommodation provided is 230 in the non-paying section and 24 in the paying section. The daily average number of patients was 326. 9,759 deliveries were conducted including 645 still births and 230 miscarriages. From amongst the deliveries there were 206 deaths of infants and 192 of mothers producing the maternal mortality rate of 19·7 per thousand deliveries. There has been an increase of infant and maternal deaths. There has also been a higher incidence of still births and miscarriages as compared with the years prior to the onset of the war. The total number of operations conducted during the year amounts to 936.

Victoria Memorial Eye Hospital.—The accommodation provided, consists of 8 beds in the paying wards and 48 beds in the non-paying wards. Since October, one ward in the Ragama Section of the General Hospital consisting of 40 beds is being utilized to accommodate female patients. There has always been overcrowding in the non-paying wards. The daily average of in-door patients for the year was 188, with a maximum of 211. There has been a marked increase in the attendance in the Out-patients' Department as well as in the number of patients treated in hospital compared with the figures for 1943 as would be seen from the following :—

	1943.	1944.
Out-patients' Department total visits	.. 77,598	.. 94,610
In-door patients treated	.. 2,021	.. 2,460

1,212 major operations, 658 extractions of Cataractous lens and 554 other operations, were conducted.

The Eye Section of the Angoda Branch Hospital is visited weekly by the Surgeon-in-Charge and the Leprosy Hospital monthly by the Second Surgeon. A School Clinic is conducted once a week to which 93 first visits and 58 subsequent visits were paid.

Emergency Hospitals.—The emergency hospitals serving the Civil Defence Scheme are entirely manned by members of this Department. Accommodation provided for the use of the services in various institutions still continues to be utilized by them.

Dieting.—Considerable difficulty is still being experienced in the dieting of patients in hospitals.

Medical Supplies.—All medical supplies in connection with Civil Defence continue to be supplied by the Medical Department. Essential medical supplies are now being secured on the Lend/Lease Scheme and this Department assists in procuring supplies for private requirements in addition to dealing with requirements of Government.

This Department deals with the control of medical supplies under the Defence Regulations.

SECTION 16.—TRAINING OF MEDICAL AND HEALTH PERSONNEL.

Medical Officers.—Eight Medical Officers were given a six weeks' course of training in health work at the Kalutara Health Unit. Two Medical Officers were trained for three months each and two for one month in V. D. work at the V. D. Clinic, General Hospital, Colombo. Two Medical Officers who were sent to India at Government expense to take the course for the Tuberculosis Diseases Diploma of the Madras Government obtained the Diploma. Thirteen Medical Officers successfully completed a course of six weeks' training in Malariology at the Malaria Field Training Centre, Kurunegala.

Apothecaries.—No Apothecary was trained in Public Health Work during the year 1944.

Sanitary Assistants.—Thirty-nine were selected by a competitive examination for the training class but only 21 of them joined it in addition to one who had failed the previous qualifying

examination and of these 13 were successful at the final examination. 26 Sanitary Assistants successfully completed a course of training in Malariology at the Malaria Field Training Centre, Kurunegala.

Pupil Nurses.—Forty-two pupil nurses were taken on during the year bringing the total under training to 130, of whom 32 completed their training and were posted to different hospitals.

Nursing Sisters.—Eight nurses successfully completed the post graduate course of training for sisters and 6 others were taken on for the same course of training.

Public Health Nurses.—The three Public Health Nurses who were undergoing training in midwifery at the Maternity Hospital, Colombo, were posted to different areas on completion of their training.

Midwives.—129 new candidates were admitted to the training class in midwifery. 109 midwives completed the course of training after six months' field training at Kalutara, Panadura and Jaffna.

Ward Attendants.—Sixty-one males and 61 females out of 100 males and 100 females taken on for training in 1943 completed their course in January. An additional 31 females completed their training in June. The rest left the training classes. 100 males and 100 females were taken on for training (one year course) in February.

Others.—Apart from Health Personnel, 20 Probationary Divisional Revenue Officers were given a course of training in the fundamentals of Rural Health, Malariology and Nutrition. 32 Rural Development Officers were given a similar training. 10 women rural workers were given a training in Maternity and Childwelfare Work; Rural Dietetics and Sanitation. 10 Probation Officers of the Prisons Department were given a course in general public health work. A batch of students from the Government Training College also spent a field day at the Health Training Centre at Kalutara.

Five personnel of the Royal Air Force, 17 agricultural students and 86 officers of the Agricultural Corps were given a training in Malariology at the Malaria Field Training Centre at Kurunegala.

In addition to this two Medical Officers of the Government of Cyprus underwent an extensive training in Public Health Work and in Malariology for a period of three months. They visited various institutions in and out of Colombo, and studied the different activities with regard to Public Health Work conducted at each institution.

Two Naval Medical Officers received a short course of training in Malariology. A Public Health Engineer from China spent a period of 9 days on a study tour of the Public Health Institutions in Colombo and elsewhere.

SECTION 17.—LABORATORY WORK.

Bacteriological Institute.—A total of 138,161 bacteriological examinations were carried out 420 samples of water were examined bacteriologically and 57 of these showed evidence of pollution.

Hospitals.—328,013 examinations were carried out at the various hospitals in the Island.

Offices of Medical Officers of Health.—209,580 examinations were done at the offices and 17,154 in Colombo.

SECTION 18.—MEDICO-LEGAL WORK.

The Judicial Medical Officer and the Assistant Judicial Medical Officer, Colombo, examined 4,945 patients and held 608 post-mortem examinations. 100 productions were microscopically examined and of these 41 were hair and 47 were blood stained articles.

Medical Officers at other stations held 1,522 post-mortem examinations which included 511 cases of accidents, 259 of suicide and 348 of homicide. A total of 5,803 assault cases were examined out of which 2,114 were cases of grievous hurt. 207 other cases including 76 of rape were also examined.

SECTION 19.—MEDICAL BUILDINGS.

Although the carrying out of the building programme has been adversely affected by existing war conditions certain essential works for which the materials, chiefly cement, were available were undertaken and completed for this Department by the Public Works Department. The more important ones include the second section of the new Operating Theatre at the General Hospital, Colombo, the Maternity Ward at Ramboda, and the Mechanical Laboratory at the Dental Institute, Colombo. A few other works are in progress such as the Maternity Ward at the Jaffna Hospital. Arrangements are also being made to acquire further land for extensions to the hospitals at Moratuwa, Ragama, Kandy, Batticaloa, Muthur, Kurunegala and Galle. The Mental Hospital at Pelawatta has been partly completed.

These are 111 rural hospitals provided for in the annual estimates, but due to various war time difficulties, however, such as the scarcity of bricks, tiles and other building materials the construction of these is slow. Only 5 hospitals have been completed, viz., at Wariyapola, Nalanda, Medawala, Hakmana and Muanhela.

Donations of land, buildings, and money for new institutions or extensions to existing ones continue to be received.

Most of the buildings handed over to the Services are still being used by them.

Plans for an extensive Post-war building Scheme for the Department are under consideration.

SECTION 20.—QUARANTINE.

Port health work was carried out in Colombo, Galle and 15 minor ports. The following is a summary of the work done at Colombo :—

Of vessels entering Colombo harbour, 10 were infected. There was no fumigation of plague suspect cargo during the year, 1944, just as it was in the past year as no rice is received from plague-infected ports now. 745 Bills of Health and 12 Rat Certificates were issued. 113 ships were fumigated of which one vessel was fumigated with SO₂ and the rest with Hydro Cyanide gas. Deratization Exemption Certificates were issued to 65 ships. 2862 cradles of soiled linen from ships, &c., were disinfected of which 210 cradles were for the Navy.

Mandapam and Thattaparai.—51,997 estate labourers and 211,525 passengers were passed to Ceylon through the Ceylon Government Quarantine Camps at Mandapam and Thattaparai in South India. Of the passengers 180,296 were passed without detention and 31,229 after full quarantine. 99,482 passengers and 52,275 estate labourers were vaccinated against smallpox and 47,815 labourers were treated for Ankylostomiasis.

SECTION 21.—MEDICAL COLLEGE COUNCIL.

During the year 16 candidates qualified as Apothecaries, 16 as Pharmacists and 131 as Midwives.

SECTION 22.—FINANCE.

The Revenue and Expenditure for the financial year ended September 30, 1944, were Rs. 3,150,515·28 and * Rs. 18,195,745·93 respectively. The financial statement of expenditures on the Administration of the Medical Wants Ordinance (Cap. 176) showed a surplus of Rs. 2,181,067: on September 30, 1943.

(* These figures do not include the cost of new buildings and improvements to and maintenance of existing ones.)

Colombo, July 24, 1945.

S. F. CHELLAPPAH,
Director of Medical and Sanitary Services.